

09/267362

1 ABSTRACT OF THE DISCLOSURE

A laser includes a first region with a first waveguide having a first diffraction grating, a second region with a second waveguide having a second diffraction grating, and a phase controlling region with a third waveguide and a phase control unit for controlling an effective refractive index of the third waveguide. The phase controlling region, the first region and the second region are coupled serially along a light propagation direction in this order, and are constructed such that light to the first region from the phase controlling region is enlarged relatively to light to the phase controlling region from the first region, or constructed such that a coupling coefficient of the first diffraction grating in the first region adjacent to the phase controlling region is smaller than a coupling coefficient of the second diffraction grating in the second region away from the phase controlling region.

20

25